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Annual Activity Report 2013

European Union Reference Laboratory for Food Contact Materials

EURL
European Union Reference Laboratory
for Food Contact Materials

Catherine Simoneau

2014

Joint Research Centre

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Joint Research Centre
Institute for Health and Consumer Protection

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Abstract
The work programme 2013 for the European Union Reference Laboratory for Food Contact Materials was established during the June 2012 Plenary meeting in consensus with the Network of NRLs and DG SANCO. It included developments on testing for ceramics in support to the revisions currently discussed for the Directive on ceramics. It also included 1) a first-time proficiency testing (PT) following the 2012 validation of a method for the new simulant for dry foodstuffs 2) a first-time PT on fingerprinting as identification of the nature of plastics FCM materials, 3) a follow up on the PT 2012 on measurement of formaldehyde from imports melaware, 4) an exercise on calculation of surface areas in contact for kitchen utensils using different methods and 5) a workshop and evaluation of supporting documents for the establishment of compliance. It also initiated exploratory work on testing of kitchen paper and napkins as a non-regulated issue for primary aromatic amines (PAAs) and on strategies to develop multianalyte methods. In addition continuing work items included the development of a databank for substances regulated under the Regulation 10/2011 for plastics as well as the development of an inventory of methods of analysis.

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2013

EURL Food Contact Materials
No SANCO/2012/FOOD SAFETY076-Food Contact Materials

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Executive summary

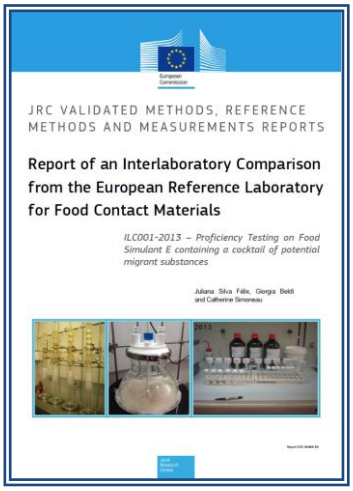
The work programme 2013 for the European Union Reference Laboratory for Food Contact Materials was established during the June 2012 Plenary meeting in consensus with the Network of NRLs and DG SANCO. It included developments on testing for ceramics in support to the revisions currently discussed for the Directive on ceramics. It also included 1) a first-time proficiency testing (PT) as next phase to the 2012 validation of a method for the new simulant for dry foodstuffs 2) a first-time PT on fingerprinting as identification of the nature of plastics FCM materials, 3) a follow up on the PT 2012 on measurement of formaldehyde from imports melaware, 4) an exercise on calculation of surface areas in contact for kitchen utensils using different methods and 5) a workshop and evaluation of supporting documents for the establishment of compliance. It also initiated exploratory work on testing of kitchen paper and napkins as a non-regulated issue for primary aromatic amines (PAAs) and on strategies to develop multianalyte methods. In addition continuing work items included the development of a databank for substances regulated under the Regulation 10/2011 for plastics as well as the development of an inventory of methods of analysis.

Activity area 1: methodologies for sampling and analysis

Sub activity 1.1 Interlaboratory comparison exercise 2013_001: comparative testing (PT) on the new simulant for dry foods (simulant E consisting of Tenax®) containing a mystery cocktail of substances

Deliverable

Report of an Interlaboratory Comparison from the European Reference Laboratory for Food Contact Materials: ILC001-2013 – Proficiency Testing on Food Simulant E containing a cocktail of potential migrant substances, SILVA FELIX Juliana, BELDI Giorgia, SIMONEAU Catherine, Publications Office of the European Union, 2013, JRC Publication N°: JRC87459, ISBN: 978-92-79-35268-3, ISSN: 1831-9424, Other Identifiers: EUR 26468, OPOCE LB-NA-26468-EN-N, DOI: 10.2788/6263



Summary:

Food simulant E, also commercially named Tenax®, was established in Regulation (EU) No 10/2011 for testing specific migration into dry foodstuffs.

The first Interlaboratory Comparison (ILC) on Food Simulant E was carried out in 2011-2012. The general aim in the previous year was to establish precision criteria of an optimised method for the analysis a number of migrants representing different physicochemical

characteristics (n=5) in Tenax® and from a migration test from a fortified plastic film into Tenax® and subsequent quantification. Volunteer laboratories with some experience in simulant E participated using a Standard Operating Procedure (SOP) prepared by the European Reference Laboratory for Food Contact Material (EURL-FCM).

The 2013 Interlaboratory Comparison (ILC001-2013) was taken as a further step since it was planned to 1) test the ability of laboratories i.e. take it to the next level being a proficiency testing (PT) with choice of any analytical method, 2) include unknown substances to test the screening ability (identification and quantification) of the laboratories and 3) expand the range of polarity and volatility of the substances under investigation.

The test material used in this exercise was clean (virgin) food simulant E fortified with contaminants prepared by the EURL-FCM. Before sending the sample to the participants, a list containing the name of ten chemical substances was distributed, from which five would be present in the simulant. Other two unknown substances not included in the list were also added to the simulant. The choice of the substances was representative of those found in the relevant scientific literature related to migration from food contact materials (plastic and paperboard) into simulant E. The respective concentrations of each substance in the simulant were chosen either to be close their own specific migration limits (SMLs) when available in Regulation (EU) 10/2011, or were tailored to the scope of the exercise. The substances chosen for the exercise 2013 were acetophenone (ACPH), benzophenone (BP), caprolactam (CAP), diethylhexyladipate (DEHA), 2,4-di-tert-butylphenol (DTBP), 2-ethyl-1-hexanol (ETHX) and 1-octene (OCT).

The homogeneity and stability studies were performed by the EURL-FCM laboratory. There were 35 participants from 26 countries to whom samples were dispatched. 30 laboratories submitted results, of which 24 were National Reference Laboratories (NRLs), 5 were Official Control Laboratories (OCLs) and one was the EURL-FCM itself. The participants were invited to report four replicate measurements under repeatability conditions. This was done by most of the participants. The participants were free to use their own analytical methods or use the SOP that the EURL provided as a guide.

The assigned values were obtained as consensus values after applying robust statistics to the results obtained from the participants. Laboratory results were rated with z-scores in accordance with ISO 13528. Reproducibility standard deviations (%) calculated by DIN 38402 A45 for the different substances in food simulant E are summarised below.

Substance	SML mg/kg	Assigned value mg/kg	Reprod. SD % at the assigned value
ACPH	-	11.03	18.12
BP	0.6	0.7	30.02
CAP	15	11.89	37.63
DEHA	18	8.37	32.52
DTBP	-	6.98	12.29
ETHX	30	9.24	23.54
OCT	15	12.13	32.20

The participation of the laboratories on this PT on the identification and quantification of ACPH, BP, CAP, DEHA, DTBP, ETHX and OCT in the simulant E was satisfactory regarding the

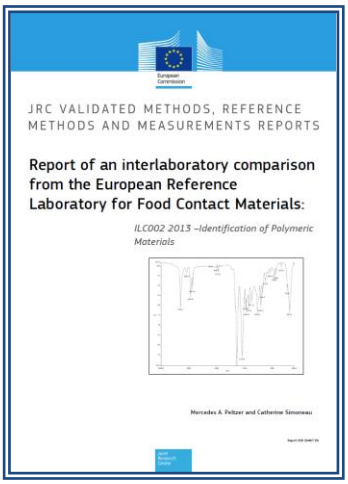
number of received results. The laboratories performance was successful with more than 61% satisfactory results over the entire exercise which was quite complex and extensive. Considering the individual substances, more than 80% of satisfactory quantification within tolerance limits was achieved (ACPH 94%, BP 80%, CAP 86%, DEHA 82%, DTBP 88%, ETHX 83% and OCT 87%). The laboratories performance concerning the identification of the unknown substances was successful, with 25 correct results out of 30 (83%), even taking into account the complexity of the exercise.

This exercise was the first Proficiency Testing carried out at EU level on Food Simulant E with the aim to evaluate the performance of the National Reference Laboratories among the Member States. The ILC001-2013 provided the first successful attempt to derive data at EU level for identification and quantification of potential migrants including unknowns coming from food contact material, as plastic packaging and paperboard, in food simulant E.

Sub activity 1.2 Interlaboratory comparison exercise 2013_002: identification of polymeric materials of unknown nature

Deliverable

Report of an interlaboratory comparison from the European Reference Laboratory for Food Contact : ILC002 2013 - Identification of polymeric materials, PELTZER Mercedes Ana, SIMONEAU Catherine, EUR - Scientific and Technical Research Reports, Publications Office of the European Union, 2013, JRC Publication N°: JRC87373, ISBN: 978-92-79-35267-6, ISSN: 1831-9424, Other Identifiers: EUR 26467, OPOCE LB-NA-26467-EN-N, DOI: 10.2788/6233



Summary:

The range of plastics polymers encountered for food contact materials is vast. The correct identification of a plastic material is a critical first step for enforcement purposes. Several recent Regulations such as Regulation EC No 284/2011 on polyamide and melamine articles or Regulation 321/2011 restricting Bisphenol A use in plastic infant feeding bottles require the ability to correctly determine the polymer type.

The scope of this ILC was a Proficiency Testing in which the participants had to identify correctly the polymer type for a range of plastics that may be used as food contact material plastics. The exercise consisted in the analysis of 12 samples (monolayers). In addition there was a scoping trial on 3 samples that were multilayers. Participants were invited to report their results in a table indicating the technique used and justifying their answers. The results were processed using descriptors amenable to assess qualitative data (also called categorical data) by comparing the participants' result with assigned values. This was done based on the standard ISO/IEC 17043:2010 for the performance for qualitative and semi-quantitative results. The evaluation of the performance was done using a scoring system between 0 and 2 for monolayers and for from 0 to 5 for multilayers. The scores obtained for each sample

was divided by the maximum score in each task, in monolayer by 2, while in multilayer by 5. Using this normalization for monolayer and multilayers, scores became between 0 and 1.

A second much more stringent evaluation was also carried out into binary data and fixed threshold (chose as 0.7) using an excel tool IF(VALUE>=threshold,1,0). In this case the performance of the laboratories was stricter taking into account the level of specificity /technical detail given in each answer.

The overall evaluation using the first evaluation scheme was that 81% of laboratories gave satisfactory results for all 15 samples (both monolayers and multilayers) being correctly identified. No laboratory obtained unsatisfactory. Using the stricter method of setting a threshold of 0.7 to be counted as correct, 53% of samples were satisfactory identified, with 54% of laboratories obtaining satisfactory results for all samples. Also in this case, no laboratory obtained unsatisfactory results (only questionable in worst case). The source of lower scores was clearly attributed to the challenges posed by analysing the multilayer samples. The main difficulty was the separation and identification of the layers in the identification of multilayers, as some are only a few microns thick. The final conclusion is that the performance of the laboratories for identification of blind samples was satisfactory for the first ever exercise in this topic. The exercise highlighted a need for guidance for the separation and identification of layers within multilayer materials. This aspect is therefore the subject of a follow up exercise in 2014.

Sub activity 1.3 Follow-up actions taken to assist NRLs in acquiring an improved performance in measurement of chemical release from FCM for the exercise of 2012-002 Formaldehyde in kitchenware.

Deliverable

Report of an interlaboratory comparison organised by the European Reference Laboratory for Food Contact Materials : Formaldehyde in 3% acetic acid migration solution -follow up exercise, BELDI Giorgia, JAKUBOWSKA Natalia, SIMONEAU Catherine, EUR - Scientific and Technical Research Reports, Publications Office of the European Union, 2013, JRC Publication N°: JRC84500, ISBN: 978-92-79-33525-9, ISSN: 1831-9424, EUR 26206, OPOCE LB-NA-26206-EN-N, DOI: 10.2788/31739

Summary

In accordance with the requirements of the EU Reference Laboratory for Food Contact Material (EURL-FCM), a follow-up exercise was organized on formaldehyde in a food contact migration solution. The scope of this exercise was the remediation and improvement of unsatisfactory or questionable results which had affected the analysis of formaldehyde in the highest concentration level test material in the ILC exercise of 2012. In 2012, out of the 62 laboratories who submitted results, 23 laboratories

(ca. 37%) had results that showed some discrepancies affecting the analysis of the highest concentration level sample. For the NRLs, 10 out of 27 laboratories (ca. 37%) had questionable or unsatisfactory scores for this test solution.

Several steps were therefore taken. In first instance, the EURL-FCM prepared a questionnaire to perform a root cause analysis. The questionnaire was sent to all laboratories which had an absolute value of the z-score higher than 2 in the determination of the concentration of formaldehyde in the high level sample of the exercise ILC 2012 (i.e. the sample of highest concentration where a dilution step was necessary). Fifteen laboratories out of 23 sent back the completed questionnaire. The input from the questionnaire indicated that the z-scores under -3 were likely caused primarily due to a dilution step which was not correctly made after the colorimetric reaction. The solvent used for the dilution did not play the key role in the determination of the formaldehyde concentration. No other conclusions could be made after the evaluation of the questionnaire results. This information was circulated to NRLs.

Consequently, as second follow-up, the EURL prepared and sent a freshly prepared migration solution of 3% acetic acid for which a dilution step was necessary for analysis to the underperforming laboratories. The test material was a "real life" migration solution prepared by the EURL-FCM from the migration of melamine kitchenware (spoons) that were releasing high amounts of formaldehyde.

There were 23 participants to whom samples were dispatched (10 NRLs + 13 OCLs from European countries). The homogeneity study was performed by the EURL-FCM laboratory. Participants were invited to report 4 replicate results for the sample. Laboratory results were processed using DIN 38402 A45 (Q-Hampel) algorithm. The assigned values were obtained after applying the robust statistics to the results of the participants. Standard deviations for proficiency assessment were set based on the Horwitz equation.

An overview of the ILC04 2013 follow up exercise outcome showed that the participation of the laboratories in the exercise was satisfactory and was in fact 100%. All 23 participants reported results. In addition two laboratories sent the results using two different sample preparation methods. The results of the quantification of formaldehyde in the migration solution of kitchenware in 3% acetic acid showed an improvement for the problematic high concentration from 63% satisfactory in 2012 to 92% satisfactory for all laboratories indifferently of NRL or OCLs. For the NRLs , all results were satisfactory, the performance increased from 63% to 100%.

Core Activity 2 – Production / validation of analytical methods

Sub activity 2.1 Provision of methods of analysis

Objective:

To provide a databank containing methodologies for the analysis of plastic food contact materials monomers and additives.

Deliverable:

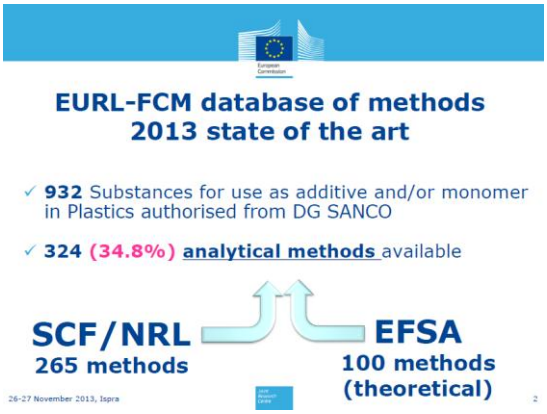
The work consisted on one part to check for new technical descriptions of applicant's methods for which EFSA opinions have been published and that were subsequently authorised in the EU legislation. The first stage was to cross reference substances for which EFSA has dossiers (hence method description) and regulated substances, the aim was to retrieve the descriptions from the dossiers.

The work in 2013 focused on the substances included in the two amendments of the Plastics regulations (1183/2012, 1282/2011) which were reviewed by FCM number.

Another part of the work was to reorganise the entire classification based on the new numeration of Reg. 10/2011 since the databases of methods and calibrants were developed in the former system of reference Numbers. This was done for all 930+ substances of the Regulation.

All methods found were summarised in a compilation list on the EURL CIRCABC platform. For 2013, the methods were systematically connected to their respective substance availability from analytical suppliers or from older collections held by the JRC where possible (see next section).

In total there are currently 324 method descriptions.



There are 265 from former petitions that were historically made under the Scientific Committee for Food (those were in printout and subsequently scanned, text recognised and revised to proper method descriptions where possible). It should be noted that the set goes back to the 1980's and thus the quality is very disparate.

There were 100 substances so far for which dossiers were submitted to EFSA and therefore may contain method descriptions. Some overlapped the older methods held previously and therefore were taken as updated descriptions. Those however were only available in locked pdf formats, therefore not amenable to be anonymised and made available as such. A different approach must be developed for 2014 to obtain the methods directly from the petitioners in word documents since for a given substance, once authorised, the corresponding method of analysis becomes public domain according to Regulation (EC) 1935/2004.

Sub activity 2.2 Database of calibrants of regulated substances

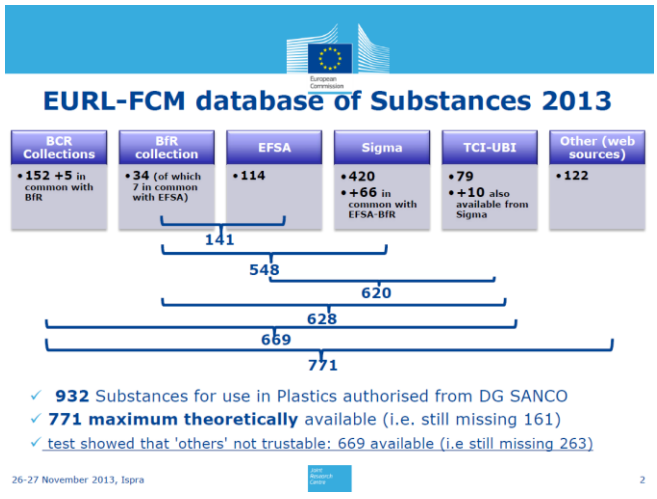
Objective:

To provide sources of substances regulated in the EU for FCM for ad-hoc provision to official controls upon request. This will be achieved by developing a bank of monomers, additives and starting substances as well as a database of information on suppliers of calibrants

Summary:

Work was continued to establish sources of analytical standards required as calibrants for the enforcement of Regulation (EU) No 10/2011. Several are not commercially available and are not included in the EURL standards collection (consisting of monomers, additives from 2 EU projects in the 1990's and chemicals received supporting more recent EFSA petitions).

There are ca. still 161+ substances out of 930+ that cannot be found commercially as analytical supply (fig 2). The ones that were previously found available from various analytical sources were rechecked and are still available.



The list of monomers and additives has now been merged in 2013 with 1) the new coding system adopted by DG SANCO in the Regulation (EU) 10/2011, and 2) the information on availability of corresponding methods. This list is on the CIRCABC area for NRLs. For the

public release of a global database directly searchable, this item is part of the workprogramme 2014.

The EURL-FCM also prepared and sent upon request monomers and additives from the reference collections to NRLs and other stakeholders for use for research or enforcement purposes. The requests (n=8) have all been met timely.

The next steps are to collaborate directly with the industrial association CEFIC and its members to establish a collaboration for the supply of substances that are currently regulated but not available commercially. The statistics on provision of substances that were submitted for petitions to EFSA for which the JRC should have received samples will be transmitted to DG SANCO and EFSA. These are relevant in particular to investigate to what extent and why some substances which should be sent to the JRC according to the model letter of the note for guidance are not always sent by the petitioners.

Sub activity 2.3 Establishment of testing methods in support of new release limits for Ceramic Food Contact Materials.

Context:

The Regulation on ceramic materials and articles is currently under revision. This revision intends to introduce much lower limits on lead and cadmium (a decrease by a factor of 400 and 60 respectively), and is thus also likely to introduce revised test conditions (e.g. repeat use) and expansion of scope (e.g. domestic glassware). In a second phase limits for other metals (e.g. Co) and other substrates (e.g. glass) would also be considered. DG SANCO highlighted that any amendment to legislation may imply the need for changes in methodology, and entrusted the EURL-FCM to undertake the preliminary work in support of provide sound data to assess the feasibility for compliance and enforceability of the foreseen measures.

Objective:

The purpose of the work in 2013 by the EURL-FCM was anticipatory in nature and focused on evaluating /comparing /developing methods and included two workshops. The work aimed to be done in consensus with the stakeholders and volunteer NRLs and to focus on the investigation of the nature and extent of release from different products currently on the market as well as on methods to tackle much lower limits and of test conditions for migration testing.

Status:

In 2013 2 workshops were organised and experimental work was conducted.

On February 21 2013, the first workshop on technical work to anticipate a new EU legislation on Ceramics took place. The workshop was co-organised by DG SANCO and JRC with the

stakeholders to plan a strategy for the JRC WP 2013 regarding the work on ceramics.

The workshop discussed foreseen issues with the new limits (DSV, Discussion Starting Values) under discussion (Pb 10µg/kg, Cd 5µg/kg) from the perspective of the participating stakeholders from a technical testing perspective. It also reviewed existing methods which are currently in use in Europe or beyond, and which may be suitable for achieving various safety limits, and identified general testing principles on which the activities could be developed. It also promoted the involvement of the stakeholders regarding information and provision of samples to establish an overview of potential releases from different types of products. The meeting included presentations on work previously done by different stakeholders including NRL-BE, ceramics and glass industry.

Preliminary work was done by EURL-FCM and a task force with NRL-BE, NRL-DE and NRL-UK was formed to develop the methods to the lower limits proposed by the commission for the release of certain metals. This small task force of volunteer NRLs convened on 26.05.2013 to compare their analytical approaches with a focus on Inductively coupled plasma mass spectrometry (ICP-MS) determination. Various aspects were covered on calibration internal standards, matric effects etc. Samples most useful were also discussed as well as he number needed.

Based on this, brochures were prepared in-house in different languages (EN, FR, IT, ES, DE) to allow the ceramics associations, Cerame-Unie, Glass Alliance Europe etc to provide the incentive for their members to participate in the programme and to provide samples to test as test materials.

Call for specific samples

The JRC is calling on the associations and their members to provide in-kind specific test articles that will allow us to develop test methods.

Shape and size: FLATWARE and HOLLOWARE

- Samples must have maximum surface to volume ratios (i.e. smaller articles are preferred)
- Flatware: Small plates with as much depth as possible to still be flatware (flatware: <2.5cm deep)
- Hollowware: Small cups (narrow and tall are better for tests), with colours or decorations either outside up to the rim or also inside.

GLAZE and COLOURS

Different samples are needed for different pigments representing different metals (it is possible to have more than one metal in one sample). **It is critical that samples can show high release**, i.e. ideally in the range of the DSV of the different metals or higher to conduct comparative tests.

NUMBER of samples to ship

- Plates: Target number is 50 for each type of sample, (e.g. each colour type of glazing type or process type); absolute minimum is 20 samples.
- Cups and tumblers: Target number is 50 for each type of sample, (e.g. each colour type of glazing type or process type); absolute minimum is 20 samples.

Samples should be sent as soon as possible **BETWEEN AUGUST 2013 AND OCTOBER 2013** to the address on the back page.

Samples may have to be produced ad-hoc (glazing, amount of pigments, firing temperature) in order to aim at the release levels important for the tests. **A larger variety of samples sent to the JRC will result in better tests.**

Joint Research Centre

The European Commission's in-house scientific service

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As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle. Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

European Commission

The Ceramic and Glass Project

Call for collaboration for the provision of TEST SAMPLES for the development of IMPROVED COMPLIANCE TESTS

EURL
European Union Reference Laboratory
for Food Contact Materials

Joint Research Centre

Background and objectives

Materials and articles in contact with foods fall under a specific legislation at the EU level to ensure the safety of the consumer while facilitating trade. Specific limits are imposed on potential release of substances during contact with foods. For ceramics limits have been in place for lead (Pb) and cadmium (Cd). These limits are also relevant for Glassware, even though no harmonized European legislation exists for this sector. Scientific data have shown the need to lower the current limits. Investigations have also shown other metals can migrate into foods which could pose concerns and should be covered by an EU legislation. Technical advances on testing can also provide the basis to extend the legislation to include improved testing conditions for certain types of bakeware and tableware, and to harmonize it with respect to glass, decorated glass and lead crystal.

Consequently **the European Commission (EC) will revise the Directive 84/500/EEC relating to ceramic articles intended to come into contact with foodstuffs.** In this context, the Joint Research Centre (JRC) has been entrusted by the EC's Directorate General for Health and Consumers with the work meant to provide the technical means to ensure the enforceability of future measures and ensure testing options in order to facilitate the decision taking at the EC, Member States and stakeholder level.

New, lower limits mean for example that the tests will need to be changed to a more realistic repeated use regime test of 3 migrations. Analytical methods are developed also for other metals (*) at their "discussion starting values" or DSV, i.e. the intended limits.

The strategy cycle of work at the JRC on ceramics and glass testing towards updated limits includes **methods/tests development – validation –proficiency testing**. This approach presents a strong advantage of solving technical enforceability issues **ahead** of the broader discussions on a revised Directive.

Need for specific test materials

The JRC relies on the industry value chain to **get test samples** that will allow the investigation of fit-for-purpose methods for compliance and enforcement. In collaboration of the ***European Association Cerame-Unie and Glass Alliance Europe,*** we are asking for provision of test materials to be sent to the JRC.

The required test samples should not be understood as industry products but as **test materials** being produced or even created for the specific purpose of **developing and comparing migration test methods** in order to develop the most pragmatic test conditions. These materials and articles must release amounts in **higher quantities** potentially than commercial products in order to establish the uncertainty of the measurement of the tests at the intended limits. These higher release levels will also allow to scale the test conditions for different pigments, metals, and processes.

Range of elements under discussion and within scope of technical research.

DSV (µg/L)	Metals	Comments
Pb: 10 Cd: 5	Pb, Cd	To be in first version of new measure
<1000	Co, Cu*, Mn, Ni, Se	Important because hazardous and likely relevant. *: maybe indicator of migration of organic complexes
To be assessed	As, Hg, Tl	Important because hazardous impurities
>1000	Al, Cr(III), Fe, V, Zn, Sn	Lower hazard, to confirm
To be assessed	Cr (VI), Li, Mo, Sb	Hazardous but doubts on relevance
Unknown	Zr, Y, Pr, U	Relevance to be examined

Current work scheme developed at the JRC

The general experimental design uses one food as benchmark to develop conventional tests on simpler liquids. For ceramics and glass, acidity of foods is a driving factor for the release of metals. For tableware, an acidic food (e.g. tomato puree) can be served boiling hot and let cool down. As it is not feasible to reproduce temperature gradients between testing laboratories, this condition is compared to a test done in equivalent isothermal conditions (e.g. 2 hrs at 70 ºC).

The results from the test in food sets the reference against which tests using simpler liquid(s) can be compared, with the aim that those must always give higher results than the food itself in order to protect the consumer. Comparisons will include tests with a food acid such as citric acid under the same conditions, as well as conventional tests that have been universally used in the past (e.g. acetic acid 24hrs at 22 ºC). It would be expected that results with acetic acid should give higher releases in order for it to remain a universal test (including for other metals than the original two, lead and cadmium, covered under the current legislation).

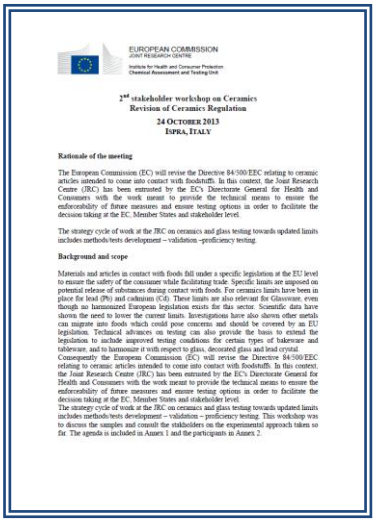
Outcome and next steps

The samples will be tested for feasibility of reference materials both for the development of test methods and for the future validation work which will also involve the network of National Reference Laboratories for FCM.

The results will serve as a basis for discussion with the stakeholders, in a workshop to be organised by the JRC in collaboration with ***Cerame-Unie*** and ***Glass Alliance Europe,*** and for the further work planning.

COLLABORATION between the JRC and the stakeholders is the key to successful developments of the future compliance tests.

The EURL-FCM established collaborations with the professional associations for the supply of samples. A call for samples was launched on July 2013 via Cerame-Unie and Glass Alliance Europe.


EUROPEAN COMMISSION
JOINT RESEARCH CENTRE

2nd stakeholder workshop on Ceramics
Revision of Ceramics Regulation
24 OCTOBER 2013
ISPRA, ITALY

Rationale of the meeting

The European Commission (EC) will revise the Directive 84/500/EEC relating to ceramic articles intended to come into contact with foodstuffs. In this context, the Joint Research Centre (JRC) has been entrusted by the EC's Directorate General for Health and Consumers with the work meant to provide the technical means to ensure the enforceability of future measures and ensure testing options in order to facilitate the decision taking at the EC, Member States and stakeholder level.

The strategy cycle of work at the JRC on ceramics and glass testing towards updated limits includes methods/tests development – validation –proficiency testing.

Background and scope

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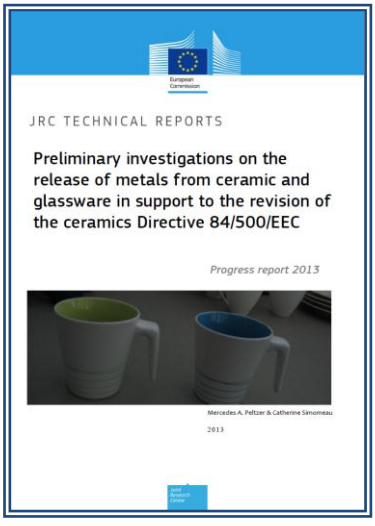
Consequently the European Commission (EC) will revise the Directive 84/500/EEC relating to ceramic articles intended to come into contact with foodstuffs. In this context, the Joint Research Centre (JRC) has been entrusted by the EC's Directorate General for Health and Consumers with the work meant to provide the technical means to ensure the enforceability of future measures and ensure testing options in order to facilitate the decision taking at the EC, Member States and stakeholder level.
The strategy cycle of work at the JRC on ceramics and glass testing towards updated limits includes methods/tests development – validation – proficiency testing. This workshop was to discuss the samples and consult the stakholders on the experimental approach taken so far. The agenda is included in Annex 1 and the participants in Annex 2.

The samples that were received were tested for feasibility as reference materials for the development of test methods. The preliminary results served as a basis for discussion with the stakeholders, towards a 2nd workshop organised by the JRC.

A 2nd workshop was organised in October 24 2013. This workshop was to consult the stakeholders on the status and reception of samples, on the experimental approach taken so far as well as on the progress on the analysis for the samples that have been received. The workshop also served to exchange information for the further work planning.


European Commission

JRC TECHNICAL REPORTS

Preliminary investigations on the release of metals from ceramic and glassware in support to the revision of the ceramics Directive 84/500/EEC

Progress report 2013

Mercedes A. Peltzer & Catherine Simoneau

2013

On the side of the experimental work, the progress was reported in an individual report. The report presented preliminary investigations on the analysis of metals and their release from ceramic and glassware. Experiments were conducted on samples from the market as well as samples provided by stakeholders. The analytical methods using ICP-MS for identification and quantification were investigated in order to provide data towards harmonisation of existing or newly developed protocols. Migration tests were performed in two food simulants: acetic acid 4% and citric acid 0.5%. The first simulant represents the classical simulant for acidic foods

under the EU legislation for ceramics as well as in standard tests for a large number of countries worldwide. Citric acid corresponds to a simulant that has recently been adopted by the Council of Europe for metals and alloys in contact with foods and thus was also included in the preliminary studies as another base for comparisons, since it is also a common food acid and frequently used as food additive (E330).

In addition, a number of investigations have established tomato sauce/puree as a worst case food for ceramics due to its acidic nature. Therefore tests were also conducted using tomato sauce to serve as potential helpful data in terms of relating to exposure assessments.

The samples used in this study were purchased in local stores and/or supplied by the ceramic and glass project contributors. Samples of both holloware and flatware were investigated.

In the study, the results of multiple migrations (corresponding to the regime of repeat use) were considered. Following the first migration (M1), the samples were washed and dried, then filled again with fresh simulant and incubated another time period at the test temperature (M2). After this migration the same procedure was repeated and the third migration was carried out (M3).

A sample preparation procedure and an ICP-MS method were developed and optimised to adequately identify and quantify a range of metals at low levels for the intended future limits in two acidic simulants (acetic acid 4% and citric acid 0.5%) and in an acidic food (tomato puree product). The analysis of metals was performed by using an ICP-MS. A method validation was performed according to the "Guidelines for performance criteria and validation procedures of analytical methods used in controls of food contact materials".

Before the quantification of the metals released from the ceramic samples, a semi-quantitative analysis was performed in order to know which metals were present and were released from each sample. From this test, the metals analysed were: Al, Zn, Ti, Fe, Sn, Pb, and Cd.

The samples purchased or received and analysed in 2013 for ceramics presented a very low migration of metals and all of them complied with the actual and future limits. On the other hand, special attention was paid to artisanal samples, since their release of metals was more significant. Results from migration tests suggested that the amount of metals that migrated to the simulants was higher than that in the tomato sauce. This demonstrated that for the samples analysed so far the simulants represented the worst scenario for metal migration from ceramicware. The investigations on tomato sauce also identified the presence of background levels of metals in tomato sauce (ca. 20ppb for each metal).

In was shown that, in general, the release of the metals Pb and Cd decreased with successive migrations. However some other metals did not follow this pattern.

A significant amount of Pb was released from the first sample tested of crystal glass when using the conventional test. Although one sample can certainly not be taken as representative of all crystal glassware, results seem to suggest that there may be an issue with lead crystalware for complying with future limits if 1) limits are set as same as for

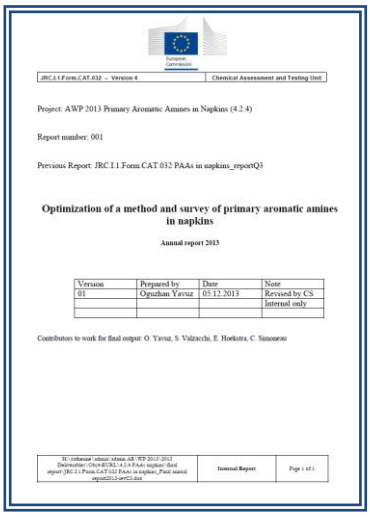
ceramics and if 2) test conditions are taken as the same as for ceramics. Further research will therefore investigate simulants representative for typical chemical nature of drinks for crystal drinkware and test conditions representative both in time and temperature.

At this stage, samples are being sent by companies, and thus more results are needed to reach any conclusion on type of simulant, method analysis, test conditions, behaviour of metals during the release, successive migrations etc. Further studies will be conducted both for crystalware and ceramics in 2014.

Sub activity 2.4 Method development on emerging issue of primary aromatic amines (PAAs).

Context:

Enforcement and scientific data have suggested that colored napkins available on the market contain PAAs that can be readily extracted into cold water. Typically o-anisidine, o-toluidine and chlorinated PAAs are present. It was noted that many of the NRLs and OCLs will not have these PAAs in their analytical suite and so any ILC may also need a method development phase. Method developments in this area are designed to support or to identify priorities on future legislative work. This activity also supports control and enforcement of migration of PAAs from other materials in regulated areas.



Project: AWP 2013 Primary Aromatic Amines in Napkins (4.2.4)

Report number: 001

Previous Report: JRC.1.1 Form.CAT.032 PAAs in napkins_reportQ3

Optimization of a method and survey of primary aromatic amines in napkins

Annual report 2013

Version	Prepared by	Date	Note
01	Oguzhan Yavuz	05.12.2013	Revised by CS
			Internal only

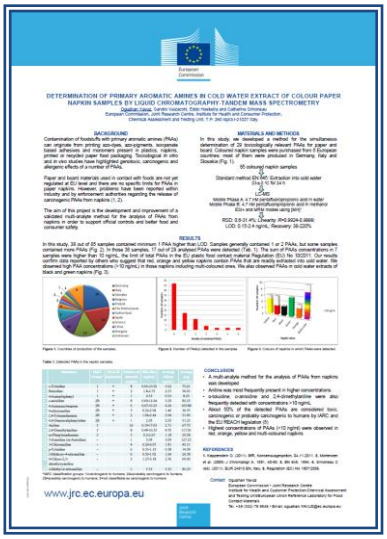
Contributors to work for final output: O. Yavuz, S. Valzacchi, E. Hoekstra, C. Simoneau

Objective

An exploratory work item was initiated on the topic by the EURL to complement the work undertaken by NRL-DE to investigate the release from napkins in cold extracts compared to other test methods for the analysis of dyes from napkins.

Deliverable:

Determination of primary aromatic amines in cold water extract of colour paper napkin samples by liquid chromatography-tandem mass spectrometry, Yavuz, O., Valzacchi S., Hoekstra E., and Simoneau, C., presented at Eurotox 2013, Interlaken, Swiss Society of Toxicology and EUROTOX, 01-04.09.2013



DETERMINATION OF PRIMARY AROMATIC AMINES IN COLD WATER EXTRACT OF COLOUR PAPER NAPKIN SAMPLES BY LIQUID CHROMATOGRAPHY-TANDEM MASS SPECTROMETRY

www.jrc.ec.europa.eu

Summary

The aim of the EURL work was the optimization of a multi-analyte method for the analysis of PAAs from napkins in order to support official controls and food safety. We developed a method for the simultaneous determination of 50 toxicologically relevant PAAs for paper and board. A survey study was carried out for determination of investigated PAAs in cold water extract of colour paper napkins. 93 Coloured napkin samples were purchased from 6 European countries and extracted. 42 out of 93 samples

contained minimum 1 PAA higher than LOD. Samples generally contained 1 or 2 PAAs, but some samples contained more PAAs. More than half of the detected PAAs are considered as toxic, carcinogenic or probably carcinogenic to humans by IARC, the EU REACH legislation and the EC CLP regulation (EC 1272/2008). Total concentrations of PAAs in 7 samples were higher than 10 ng/mL, the limit of total PAA in the EU plastic food contact material Regulation (EU) No 10/2011. The results confirm data reported in other studies which suggest that red, orange and yellow napkins contain PAAs that are readily extracted into cold water. In our study, red, orange, yellow and multicolour napkins also contained high levels of PAAs. However, we also found that green and black napkins contained certain levels of PAAs that are readily extracted into cold water which had not been reported previously.

Sub activity 2.5 Strategies for multianalyte methods (kick off)

Rationale

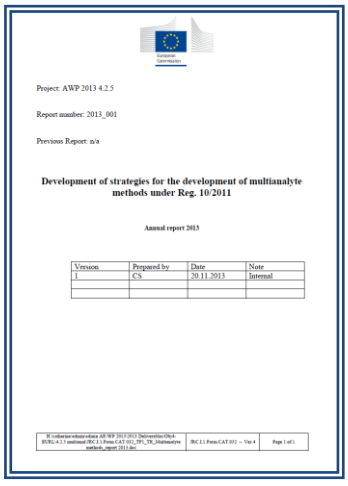
The field of FCM covers more than 930 regulated substances, whereas only 28 methods have had a restricted validation under CEN. There are notably no official methods, no Codex methods, and very few validated methods with full data traceability. There is therefore a need to develop strategies towards non targeted sample preparation and multianalyte analysis methods.

Objective

The objective is to provide some grounds for criteria for the selection and clustering of multianalyte methods. To this aim, a small task force was formed as part of the 2013 workprogramme in order to discuss with experts in this field the advantages and limitations of these methods with regard to FCM contaminants determination.

Deliverable:

Internal report: Development of strategies for the development of multianalyte methods under Reg. 10/2011- Simoneau, C. JRC87357;



Project: AWP 2013 4.2.5

Report number: 2013_001

Previous Report: n/a

Development of strategies for the development of multianalyte methods under Reg. 10/2011

Annual report 2013

Version	Prepared by	Date	Note
1	CS	20.11.2013	Internal

Summary

The EURL-FCM organised the kick off of a new task force in support to the development of strategies of multianalyte methods. The scope was a brain storm to review pieces of information available at EU level (EU RTD or national projects) and classify elements that can be used as criteria against which clustering of substances can be organised. The meeting also presented the on-going work of the JRC done in parallel on collection of information on methods and calibrants for the substances that are regulated under Reg. 10/2011.

The outcome of the meeting was a consensus on a strategy for the classification and prioritization of all substances currently concerned under the Regulation for plastics materials and articles in contact with foods. Factors were identified as follows: Relevance of

substances as they are used (market share, end use/application, type of materials), Physico chemical properties, Restrictions in place (numerical range, sensitivity level of calibrations), Instrumental technique for analysis, Classification as functional group or chemical aspects. These factors were then detailed in to sets of numerical criteria to foresee on specific collection of information.

This allowed to strategise for a second phase of the next 2 years. In phase 2, methods held in the databank of the EURL FCM will be grouped by analytical analogy on their amenability to be clustered as multianalyte analysis. Further preliminary development work will be carried out on a selection of substances applicable for screening.

Sub activity 2.6 Interlaboratory comparison exercise 2013_003: determination of surface contact area.

Deliverable

Report of an inter-laboratory comparison from the European Reference Laboratory for Food Contact Materials: ILC003 2013 – Food Contact Surface Area of Kitchen Utensils, MIETH Anja, HOEKSTRA Eddo, EUR - Scientific and Technical Research Reports , Publications Office of the European Union, Publication Year: 2013, JRC Publication N°: JRC87418, ISBN: 978-92-79-35278-2, ISSN: 1831-9424, Other Identifiers: EUR 26477, OPOCE LB-NA-26477-EN-N, DOI: 10.2788/65099,

Summary

The determination of the surface area is an essential step in measurements for overall and specific migration. For plastic materials, the overall migration limit is set to 10 mg per dm^2 of food contact surface (e.g. Regulation (EU) 10/2011 Art. 12 (1)). Hence, migration results are expressed in mg/dm^2 food contact surface. Specific migration results should be expressed in mg/kg food applying the real surface to volume ratio in actual or foreseen use. In case of kitchen utensils, it is difficult to estimate the quantity of food that will be in contact with the sample. Therefore, the value of migration is expressed in mg/kg applying a surface to volume ratio of 6 dm^2 per kg of food (Regulation (EU) 10/2011 Art. 17 (1+2b)). In practice, specific migration values are first calculated in mg/dm^2 food contact surface and later transferred into a value in mg/kg food, so again the food contact surface area is needed for the expression of results. Therefore, an exact and reproducible determination of the food contact surface area is required.

The work programme 2012 contained one pilot optional exercise to determine the contact area of utensils as part of the exercise of measurement of migration of formaldehyde from kitchenware. The distribution of results returned was relatively wide: they ranged from 0.73-1.99 dm^2 for the surface area of the same melamine spoon. Yet, the reasons for the broad distribution of results in the ILC01 2012 could not be determined.

Considering that the expression of results is relative to an area in contact with foods, the reliability of results also depends on the correct measurement of the surface area. It was therefore assessed that this aspect needed to be further investigated by a targeted exercise in 2013 in order to assess whether the approaches that were used for the determination of the surface area were unsuitable or whether the performance of the laboratories was unacceptable.

The purpose of the exercise was to demonstrate the capacity of NRLs to perform adequately the measurement of surface area of kitchen utensils in the implementation of controls under both Regulation EU No 10/2011 and EU No 284/2011. The exercise aimed in practice at a comparison of methods. Indeed, as there are no formally established methods, the most common approaches for the determination of the surface area were compared in terms of reproducibility and trueness.

The EURL first developed a questionnaire in order to collate information/approaches that were used by NRLs for the determination of surface area. 14 NRLs replied. The four approaches that were mentioned most often were chosen, as follows 1) calculation of the area using mathematical formulas for regular geometric shapes, 2) wrapping the sample in paper (cut and weigh the paper), 3) wrapping the sample in aluminium foil (cut and weigh the foil) and 4) drawing the outline of the sample on paper (cut and weigh the paper).

As the exercise aimed at a pre-validation of the four selected test methods, the participants were asked to follow the provided, detailed instructions to measure the surface area of the samples. As an additional voluntary exercise, the participants were asked to determine the envelope volume of the samples, using a 2-cm-scale and a 5-cm-scale. The "envelope volume" concept was proposed by the Council of Europe in a draft for a new resolution. It does not represent a way to determine the surface area of a kitchen article but it returns an estimated value for the amount of food that comes into contact with the article.

The test materials were five different types of plastic kitchen utensils obtained from a worldwide supplier. Homogeneity studies on width, depth, length and thickness of the samples were carried out by the EURL-FCM. They indicated sufficient sample homogeneity.

Samples were dispatched to 67 participants (30 NRLs + 37 national official control laboratories from Belgium, Germany, Italy, Spain and the United Kingdom), 63 of them submitted results for the surface area and 53 for the envelope volume.

Overall results showed a satisfactory laboratory performance. Difficulties were observed for the determination of the sample height that will be foreseeably in food contact (Hf). This would not affect migration results if the migration is constant over the entire sample surface, i.e. unless the tested articles are multi-material products or have a printing on the handle. The results suggested that for the determination of the surface area, the trueness and precision of the methods depended on the sample shape. "Calculation" generated accurate results for all sample types. "Drawing the shape" was most convenient and provided accurate results for flat samples that had a negligible thickness. For round-shaped samples, "wrapping in aluminium foil" was most convenient but it overestimated the surface area. The trueness might be improved if a thicker aluminium foil was used. "Wrapping in

paper" generated accurate results for flat samples and simple geometric shapes. For round-shaped samples, the surface area was overestimated as well. In general, paper was less convenient for wrapping than aluminium foil.

With respect to the final migration result, the reproducibility standard deviations obtained for all four approaches were acceptable considering that the migration measurement itself can be affected by uncertainties of similar levels as those of the determination of the surface area. The determination of the envelope volume was convenient. It required only the determination of Hf and the measurement of the depth and width of the sample. Despite this, some difficulties were observed regarding the measurement of the sample dimensions. The determination of the envelope volume is a new approach and most of the laboratories performed this determination for the first time. The laboratory performance is expected to improve with more training. Therefore in 2014 a guidance and recommendation will be produced as a final output from all the data gathered in this exercise.

Core Activity 3 – Training and support to NRLs

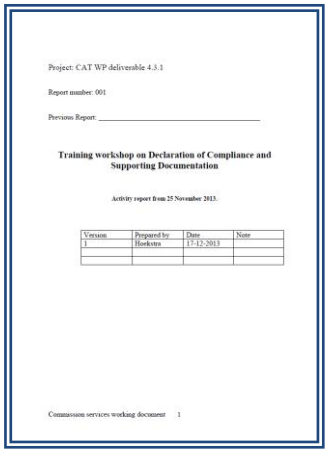
Sub activity 3.1 NRL expert training: declaration of Compliance and Good Manufacturing Practice

Rationale

Declaration of Compliance and Good Manufacturing Practice (GMP) are topics causing a great deal of confusion for NRLs and their inspection services. National reference laboratories are frequently asked how the GMP Regulation 2023/2006 and declaration of compliance (DoC) should be interpreted and enforced. The reason for this is that the regulation is both complex (requiring in depth chemical knowledge) and poorly defined. For enforcement to be equal throughout Europe, it is important that the EURL-FCM provides the NRLs with guidelines for the interpretation of 2023/2006 and DoC. There have been activities from various Member States on the specific requirements for parts of 2023/2006, but these have focused mainly on the declaration of compliance itself. The more difficult question of how to evaluate the “in-house documentation” has been largely neglected.

Objective

The aim of the one-day workshop was to provide the EURL-NRL network an understanding of the requirements of the DoC and the supporting documentation and what their connection is with GMP. The second aim was for NRLs to be informed on how to assess DoCs and corresponding supporting documentation when they may be asked to support the official controls.


Project: CAT WP deliverable 4.5.1

Report number: 001

Previous Report: _____

Training workshop on Declaration of Compliance and Supporting Documentation

Activity report from 25 November 2013.

Version	Prepared by	Date	Note
1	Horkstra	17-12-2013	

Commission services working document 1

Deliverable

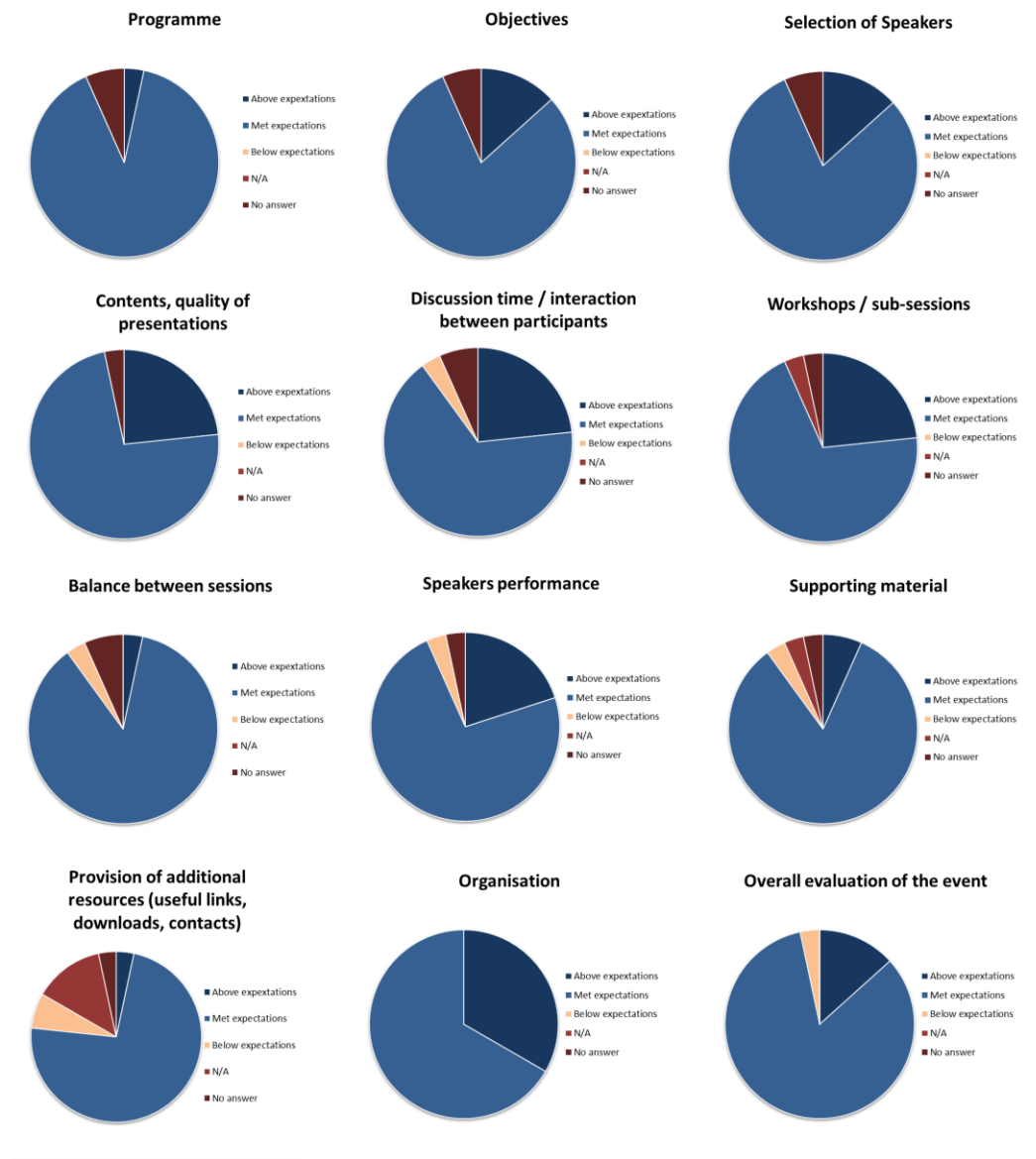
Training workshop on Declaration of Compliance and Supporting Documentation, Activity report from 25 November 2013. Hoesktra, E. (ed),

Summary

On 25 November the EURL-FCM organized a workshop on the Declaration of Compliance and supporting documentation for official controls of food contact materials in the framework of its work programme. The agenda consisted of seven presentations by experts both from NRLs and from institutes with expertise. It also contained sets of exercises organised in break out groups. Mr. Helling (Landesuntersuchungsanstalt für das Gesundheits- und Veterinärwesen (LUA) Sachsen Dresden, OCL-DE) reported on the outcome of the DG SANCO Task Force on information in the supply chain and highlighted important aspects of the guidelines on the Declaration of Compliance. Mrs. Milana (Istituto Superiore di Sanita, NRL-IT) presented the progress of the Italian CAST project on the development of guidelines for documentation that supports the Declaration of Compliance. Mr. Petersen (Danish Technical University, NRL-DK) gave an update to the audience on the revision of the Nordic guidelines on Declaration of Compliance and supporting documentation. Mr. Gude (Swiss Quality Testing Services, CH) presented the experience of industry with the legal requirements of the Declaration of Compliance and supporting documentation. Mrs. Harling (Chemical State and National Veterinary Examination Office, CVUA Stuttgart, DE) presented the outcome of the voluntary "lid project" the NRLs are carrying out on the compliance of lids (from glass jars used as food packaging for preserved foods). She presented with Mr. Petersen an exercise where the participants had to evaluate a set of Declaration of Compliance and supporting documentations related to lids. The participants, divided into groups, had to present their evaluations and the problems encountered were discussed in a plenary wrap-up session. A presentation was made by Mr. Callaert (Viaware, BE) on a software that supports the preparation and managing of Declarations of Compliance and their supporting documentation. Finally, Mr. Keegan (Public Analyst Laboratory - Sir Patrick Dun's, NRL-IE) presented an App (web-based application) that creates a check list for the preparation of Declaration of Compliance.

Outlook and Impact

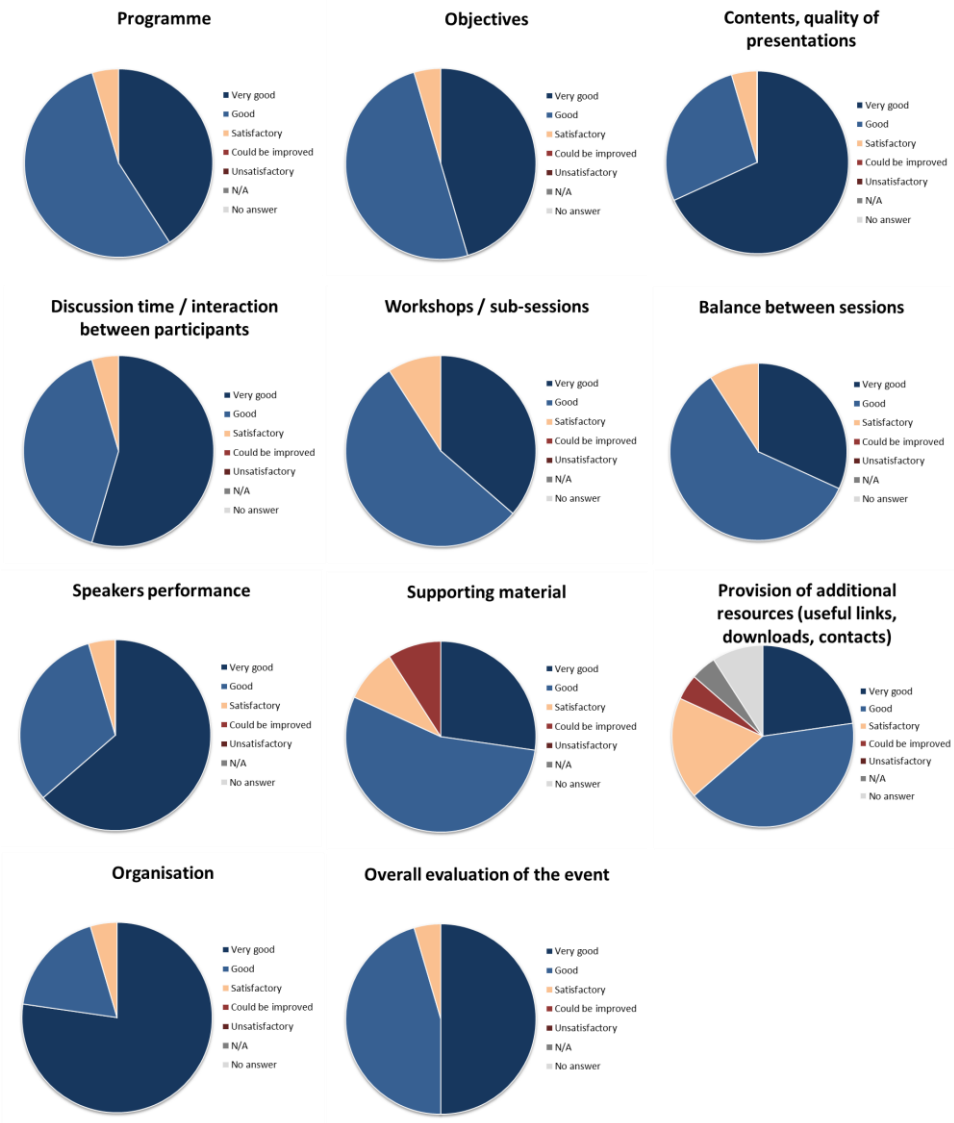
The overall impact was to gather critical information which then can be collected into a consensus of approach. The item could then continue during the following years with 1) the formation of a special working group 2) the drafting of a harmonised guidance document for checking compliance, and 3) the possible organisation of a future ILC on the assessment of DoCs and “in-house documentation”. This has not been put forward in the work programme 2014 but could be developed for 2015. A customer satisfaction was collected for the training. The results are summarised below. Only one person out of 30 participants found the event not corresponding to the expectations. That person felt that it was "too much about the declaration of compliance and not enough about the difficulties faced by the laboratories for analysis trouble shooting, developing new techniques". As the workshop was combined with a plenary NRL forum taking place the next day, the assessment of the reason for the low scoring was likely due to a confusion on the schedules of the different meetings.



Other comments included "more resources are needed, more hand materials with additional case studies to take back. ", "reinforce the sensibility of the lab people on inspection, audits, sampling, and on getting more communication between territorial and laboratories", "further discussion on the exercises of lids, especially on the speakers side, would have been welcomed". Positive comments were related to how educational the workshop was and the group exercises were a very good opportunity not only in the learning process but also to exchange with people and network. Regarding the comments, it is clear that more is needed in this area. Although it is not a classical area of performance indicators for EURLs in food and feed, it is a critical point for the enforcement of compliance for FCM as it is a type of desk work that NRLs often also have the duty to train for inspectors of OCLs. Regarding the issues where communication between national entities was raised, it is a more delicate issue to tackle likely outside the competence of the EURL itself, although again the EURL-FCM is supporting an initiative in collaboration with NRL-NL to promote the sharing of information not only between NRLs but also between Member State Competent Authorities.

Sub activity 3.2 Workshops for the Network of NRLs

Coordinated EURL-NRL workshops took place in two occasions. The workshops served to strengthen the structure of the network and to identify the needs of the NRLs. Specific topics concerning the specific analysis of FCMs were addressed during the workshops as well. The first was on 26-27 June 2013. The agenda included the preparation of the work programme 2014, as well as discussion of results of the ILC follow-ups and current ILCs. The workshop included a session of general exchange of information and information from the Commission. The plenary meeting took place on 26-27 November 2013, focusing on a review of the results of the ILCs 2013. It was preceded by a one-day training course on Declaration of Compliance (see section above). The workshop included a session of general exchange of information and information from the Commission. A customer satisfaction survey was conducted during the plenary. The results are summarised below.



Comments included "All is excellent and useful for our daily job", whereas remarks on possible improvements included: "supporting information on CIRCABC could be published some weeks earlier if possible". The overall evaluation showed that 23 out of 28 laboratories filled their survey (return rate of 82%) and for the forms received showed 100% of satisfaction from NRLs.

Sub activity 3.3 Ad-hoc questions or exchange of information with NRLs

The activity was related to work in reported problem areas. It provided support by means of information and technical advice National Reference Laboratories. The ad-hoc questions the EURL or JRC FCM staff received were as follows: about 70 emails were received regarding information on FCM legislation (±50%), analytical methods (±25%), availability of standards (±25%) etc. In addition, the questions sent to the FCM group members was estimated tol be about 30, mainly regarding information on FCM legislation (±90%), analytical methods and availability of standards (±10%)

The EURL-NRL network developed an excel file to exchange information concerning accredited, validated and other analytical methods. The aim is to do the same in 2014 for official controls laboratories, because that could become a driver for the work programme.

The work also included maintaining close awareness of developments in methodologies, and to brief where relevant, at the Annual Plenaries and Workshops of National Reference Laboratories.

In addition the EURL-FCM also liaised with National Reference Laboratories via e-mail and via the CIRCABC platform to ensure rapid flow of information.

Core Activity 4- Provision of expertise to stakeholders (Commission, agencies, member states)

The activity included providing support to DG SANCO in technical matters concerning analytical methodologies for food contact materials when requested, participating in DG SANCO WG meetings, participating to EFSA meetings or working groups where indicated, performing research activities in support to commission e.g. Ceramics, modelling, guidance to Regulation (EU) 10/2011. Finally one item was also to provide information and advice on the use and training opportunities of the FACET RTD tool for the exposure assessment of contaminants from food contact materials. Deliverables can be seen with section outputs.

Core Activity 5- Reciprocal exchange of information with professional bodies and stakeholders

Support to CEN

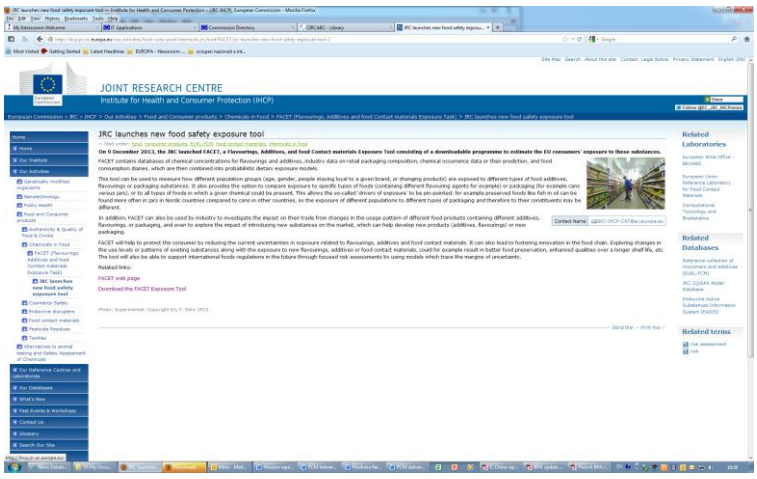
Providing support to standardisation bodies such as CEN for the standardisation of analytical methods for the determination of migrants from food contact materials. This can require a regular participation in the meetings of CEN TC 172/WG3 and CEN TC194/SC1 WG where applicable.

Deliverable:

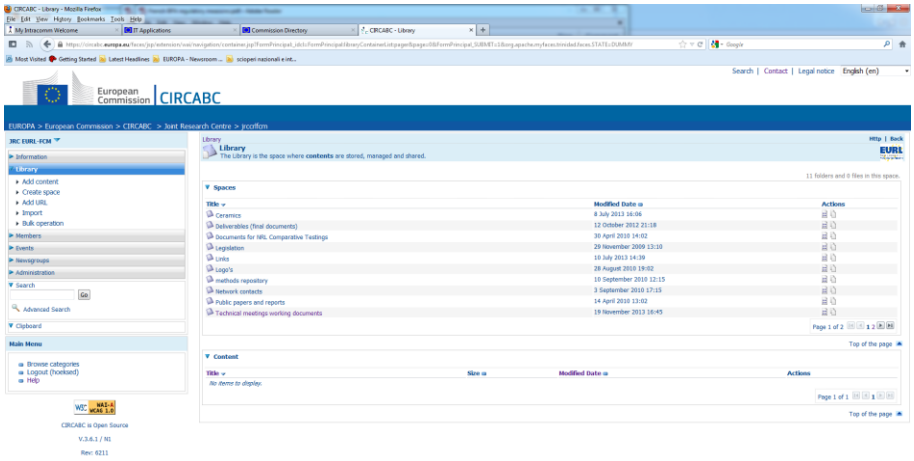
SIMONEAU Catherine; Harmonizing and validating methods: the case of Tenax as new simulant E for specific migration for plastics, Meeting of CEN TC 172 WG3 on paper and board in contact with foodstuffs , Berlin, DE, JRC81382

Internal and external communication, web site

The web portal http://ihcp.jrc.ec.europa.eu/our_labs/eurl_food_c_m was maintained and updated. The platform supports the public dissemination of the work on food contact and serves as a reference, contact and service point for laboratories involved in the analysis of food contact materials in Europe and worldwide. The website holds information about the activities and events carried out by the EURL-FCM as well as published reports available and scientific papers. The EURL-FCM website was updated related to the FACET project and the questionnaire related to occasional use of ceramic food contact materials. The Network of NRLs was more strongly emphasized in new pages in 2013.



The dedicated website on CIRCABC specifically for NRLs is designed to support dissemination of information and network activities https://circabc.europa.eu/ under Joint Research Centre, JRC EURL-FCM. The platform represents a main source of information exchange between the EURLs and the NRLs as well as is used for repository of working documents and traceability purposes. It also holds forms, sheets and other documents thus facilitating the management of tasks. It will be continuously updated. In the CIRCABC interest group EURL-FCM a subgroup for the Ceramic working group was created. The CIRCABC interest group EURL-FCM and migration testing were updated following the meetings that were done (2x and 4x respectively)



New space for ceramics group

Quarterly updates for the deliverables were done for public website and continuous updates throughout the year were performed for CIRCABC website.

Outputs for 2013

Publications

JAKUBOWSKA Natalia; BELDI Giorgia; BACH Aurelie; SIMONEAU Catherine; Optimisation of an analytical method and results from the inter-laboratory comparison of the migration of regulated substances from food packaging into the new mandatory EU simulant for dry foodstuffs, 2014, foodstuffs Food Additives and Contaminants - Part A Chemistry, Analysis, Control, Exposure and Risk Assessment, 2014, DOI: 10.1080/19440049.2013.874046, JRC84908, in press 01/2014;

CONTINI Claudia; VALZACCHI Sandro; O'SULLIVAN Michael; SIMONEAU Catherine; DOWLING Denis P.; MONAHAN Frank J.; Overall migration and kinetics of release of antioxidant compounds from citrus extract-based active packaging, Journal of Agricultural and Food Chemistry, 2013, 61:12155-12163. DOI:10.1021/jf402620b, JRC84226, ISSN: 0021-8561, DOI: dx.doi.org/10.1021/jf402620b, URI: http://pubs.acs.org/JAFC

HOEKSTRA E., SIMONEAU, C.; Release of Bisphenol A from polycarbonate: a review Critical Reviews in Food Science and Nutrition. 2013 53 (4), pp. 386-402, JRC60520, ISSN: 1040-8398, DOI: 10.1080/10408398.2010.536919, URI: http://www.tandfonline.com/

SILVA FELIX Juliana; BELDI Giorgia; SIMONEAU Catherine; Report of an Interlaboratory Comparison from the European Reference Laboratory for Food Contact Materials: ILC001-2013 – Proficiency Testing on Food Simulant E containing a cocktail of potential migrant substances, 2013, EUR - Scientific and Technical Research Reports EUR 26468, JRC87459, ISBN: 978-92-79-35268-3, ISSN: 1831-9424, DOI: 10.2788/6263, Publications Office of the European Union

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HOEKSTRA Eddo; Report on technical guidelines on testing migration; 2013; 2.3 JRC Technical Reports, JRC87620

HOEKSTRA Eddo; Quarterly updates of the EURL-FCM web pages site and of the Repository of documents (Circabc); 2013; 2.3 JRC Technical Reports, JRC87759

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HOEKSTRA Eddo; Replies on ad-hoc questions or provision of exchange of information with NRLs; 2013; 2.3 JRC Technical Reports, JRC87751

VALZACCHI Sandro; CHASSAIGNE Hubert; LOBO PEREIRA VICENTE Joana; GUILLOU Claude; SIMONEAU Catherine, Feasibility Study – Determination of Additives & Non-intentionally Added Substances migrating from lid gaskets of glass jars using MS-based techniques, 2.3 JRC Technical Reports, JRC85750

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YAVUZ Oguzhan; VALZACCHI Sandro; HOEKSTRA Eddo; SIMONEAU Catherine; Optimization of a method and survey of primary aromatic amines in napkins: Annual report 2013, 2.3 JRC Technical Reports, JRC87374

Invited oral presentations:

HOEKSTRA Eddo; Technical guidelines for migration testing, DG SANCO FCM working group, 16.12.2013, Brussels, BE, JRC87450

OMANOVIC-MIKLICANIN Enisa; VALZACCHI Sandro; SIMONEAU Catherine; ROSSI Francois; Characterization of the surface adsorption forces for Au nanoparticles using biological surface adsorption index (BSAI) approach, 2013, international workshop on nanomaterials, 03-05.12.2013, Ispra, IT, JRC87481

SIMONEAU Catherine, FACET: what it has changed, Plastics and paper in contact with foodstuffs, Pira-Smithers, 09-12.12.2013, London, UK, JRC87487

HOEKSTRA Eddo; Development of technical guidelines for migration testing towards improved harmonized enforceability and compliance, MCAS meeting, 5.12.2014, Paris, FR, JRC87448

HOEKSTRA Eddo; The JRC Activities on Food Contact Materials and Nanomaterials, NanotechItaly2013, 27-29.11.2013, Venice, IT, JRC87446

SIMONEAU Catherine; Le rôle du JRC dans le support scientifique au développement de législation et en tant que laboratoire européen de référence pour l'exécution des contrôles officiels [The Role of JRC and the EURL-FCM in support of legislation and standardization] , Colloque scientifique – Les matériaux au contact des aliments , 14.11.2013, Paris, FR, JRC85139

SIMONEAU Catherine; Development of technical guidelines towards improved harmonized enforceability and compliance for FCM; Fresenius Conference on residues of food contact materials in foods, 20-21.11.2013, Cologne, DE, JRC86823

SIMONEAU Catherine, The role of the JRC in supporting developments in food contact legislation and standardisation, XXIII Technical exchange conference of the European Domestic Glass Committee and the International Crystal Federation, 29.09.2013-02.10.2013, Kufstein, AT, JRC84651

YAVUZ Oguzhan; VALZACCHI Sandro; HOEKSTRA Eddo; SIMONEAU Catherine; Determination of primary aromatic amines in cold water extract of colour paper napkin samples by liquid chromatography-tandem mass spectrometry, 01-04.09.2013, Eurotox, Interlaken, CH, JRC84593

AGUAR FERNANDEZ Maria Pilar; BARRERO Josefa; GUILLOU Claude; PICCININI Paola; REMBGES Diana; SIMONEAU Catherine; 2013, Emerging issues for Customs: Which approaches will be needed in the future?, 5th Seminar of European Customs Chemists, Customs 2013 programme, 10-12.07.2013, Paris, FR, JRC82509, 2013

SIMONEAU Catherine; Reliability of results from method performance and laboratory performance: an absolute must with legal consequences both for official controls and industry testing for compliance, Conference Reliability in analytics: a basic requirement for testing laboratories, 05.07.2013, Modena, IT, JRC83579

SIMONEAU Catherine; HOEKSTRA Eddo; Drafting of guidelines for migration testing in support of Regulation (EU)10/2011, DG SANCO- Member States Working party for Food Contact Materials, 06.05.2013, JRC83573

SIMONEAU Catherine; EU legislation for FCM-state of play, 2013, SAFEMTECH: adhesives-how could they affect food packaging safety? 19.04.2013, Induno Olona, IT, JRC81436

HOEKSTRA Eddo; European Union Reference Laboratory for Food Contact Materials and Horizon 2020, International Workshop on Development of new safe polymer nanomaterials food packaging (PNFP) and development of strategies to identify interaction of PNFP with food, 21-22.3.2013, Wädenswil, CH, JRC80237

SIMONEAU Catherine; Harmonizing and validating methods: the case of Tenax as new simulant E for specific migration for plastics, Meeting of CEN TC 172 WG3 on paper and board in contact with foodstuffs , Berlin, DE, JRC81382

EURL stakeholders meeting and training workshop

HOEKSTRA Eddo; PELTZER Mercedes Ana; SIMONEAU Catherine; Study on migration tests conditions and analysis of metals migrating from ceramics and glassware, DG SANCO FCM working group, 16.12.2013, Brussels, BE, JRC87453

MIETH Anja; HOEKSTRA Eddo; SIMONEAU Catherine; Determination of the Food Contact Surface Area of Kitchen Utensils, 19th plenary workshop of the European Union Reference Laboratory for Food Contact Materials and its Network of National Reference Laboratories EURL-FCM, 26-27.06.2013, Ispra, IT, JRC83574

SILVA FELIX Juliana; BELDI Giorgia; SIMONEAU Catherine; Interlaboratory comparison organized by the European Reference Laboratory for Food Contact Material in 2013: ILC001 2013, Interlaboratory Comparison (ILC) exercise on Food Simulant E (Tenax®), 19th plenary workshop of the European Union Reference Laboratory for Food Contact Materials and its Network of National Reference Laboratories, 26-27.06.2013, Ispra, IT, JRC83575

PELTZER Mercedes Ana; SIMONEAU Catherine; Work progress on Inter-laboratory comparison exercise 2013-002: Polymer identification, 19th plenary workshop of the European Union Reference Laboratory for Food Contact Materials and its Network of National Reference Laboratories, 26-27.06.2013, Ispra, IT, JRC83576

PELTZER Mercedes Ana; SIMONEAU Catherine; Proposal Experimental Design for Work on Ceramics, 19th plenary workshop of the European Union Reference Laboratory for Food Contact Materials and its Network of National Reference Laboratories, 26-27.06.2013, Ispra, IT, JRC83577

YAVUZ Oguzhan; VALZACCHI Sandro; HOEKSTRA Eddo; EURL-FCM plenary June 2013: Primary aromatic amines in colour paper napkins; 19th plenary workshop of the European Union Reference Laboratory for Food Contact Materials and its Network of National Reference Laboratories EURL-FCM, 26-27.6.2013, Ispra, IT, JRC83578

SIMONEAU Catherine; European Reference Laboratory for Food Contact Materials, kick off workshop on EURL technical work to anticipate a new EU legislation on Ceramics, 21.02.2013, Brussels, BE, JRC81435

SIMONEAU Catherine; Work on Ceramics: introduction, scope and considerations, 2nd stakeholder workshop on Ceramics: Revision of Ceramics Regulation: 24 October 2013, Ispra, JRC87349

SIMONEAU Catherine; Briefing on FACET, 20th Plenary meetings of the EURL-FCM with its NRL Network, 26-27.11.2013, Ispra, JRC87358

SIMONEAU Catherine; Development of strategies for multianalyte methods: outcome of work 2013, 20th Plenary meetings of the EURL-FCM with its NRL Network, 26-27.11.2013, Ispra, IT, JRC87357

HANNAERT Philippe; SIMONEAU Catherine; Update on database of substances : outcome of work 2013, 20th Plenary meetings of the EURL-FCM with its NRL Network, 26-27.11.2013, Ispra, IT, JRC87353

BELDI Giorgia; SILVA FELIX Juliana; SIMONEAU Catherine; Update on database of methods: outcome of work 2013, 20th Plenary meetings of the EURL-FCM with its NRL Network, 26-27.11.2013, Ispra, IT JRC87354

SILVA FELIX Juliana, BELDI Giorgia, SIMONEAU Catherine, Inter-laboratory comparison organized by the European Reference Laboratory for Food Contact Material in 2013: ILC001 2013, 20th Plenary meetings of the EURL-FCM with its NRL Network, 26-27.11.2013, Ispra, IT JRC87340

PELTZER Mercedes Ana; SIMONEAU Catherine; Inter-laboratory comparison exercise organised by the EURL-FCM ILC002 2013 : Polymer Identification, 20th Plenary meetings of the EURL-FCM with its NRL Network, 26-27.11.2013, Ispra, IT JRC87344

Annex 1 list NRLs

List of the National Reference Laboratories for Food Contact Materials		
Country	**NRL, name and address**	**name and e-mail of principle c**
AUSTRIA	Austrian Agency for Health and Food Safety (AGES), Institut für Lebensmittelsicherheit Wien, Spargelfeldstraße 191, 1220 Vienna, Austria	*Mr. Markus Polz*
BELGIUM	Institute of Public Health, ISSP-LP, Rue J. Wystman, 14, 1050 Bruxelles, Belgium	*Mr. Fabien Bolle, Mrs. Tina Ng Els Van Hoeck*
BULGARIA	National Center for Public Health Protection, 15, Akad. Ivan Geshov Blvd., 1431 Sofia, BULGARIA	*Mrs. Teri Vrabcheva*
REPUBLIC OF CYPRUS	Laboratory for Control of Food Contact Materials and Control of Toys, Ministry of Health, State General Laboratory (SGL), 44 Kimonos st, Acropolis, 1451 Nicosia, Cyprus	*Mrs. Evgenia Paraskeva Vatyli Mrs. Antigoni Achilleos*
CROATIA		
CZECH REPUBLIC	National Institute of Public Health, NRL for Food Contact Materials and for Articles for children under 3 years old, Šrobárova 48, 100 42 Praha 10, Czech Republic	*Mrs. Jitka Sosnovcová, Mr. Ka Vrbík*
DENMARK	Department of Food Chemistry, National Food Institute Technical University of Denmark, Mørkhøj Bygade 19, 2860 Søborg, Denmark	*Mr. Jens Højslev Petersen*
	Danish Veterinary and Food Administration Laboratory Århus, Sønderskovvej 5, 8520 Lystrup, Denmark	*Mrs. Bolette Okholm*
ESTONIA	Health Board - Central Laboratory of Chemistry, 2 Kotka street, 11315 Tallinn, Estonia	*Mrs. Jana Jõgi*
FINLAND	Finnish Customs Laboratory, Tekniikantie 13, 02150 Espoo Finland	*Mrs. Arja Meriläinen*
FRANCE	Testing Department- Laboratoire National d'Essais, 29, avenue Roger Hennequin, 78197 Trappes Cedex, France	*Mr. Patrick Sauvegrain*
	SCL Laboratoire de Bordeaux-Pessac, 3, Avenue du Docteur Albert Schweitzer, 33608 Pessac, France	*Mrs Isabelle Deyris*
GERMANY	Bundesinstitut für Risikobewertung (BFR) (Federal Institute for Risk Assessment), Max-Dohrn-Str. 8-10, 10589 Berlin, Germany	*Mr. Oliver Kappenstein*
GREECE	General Chemical State Laboratory, D' Chemical Service of Athens, Section, Laboratory of Articles and Materials in Contact with Foodstuffs, 16, An. Tsocha st, 115 21 Athens, Greece	*Mrs. Irene Poulima , Mr. Alexa Lioupis*
HUNGARY	National Food Chain Safety Office, Food and Feed Safety Directorate, 1095 Budapest Mester u. 81., Hungary	*Mrs. Monika Csermely, Ms. An Istenes, Mr. Gábor Domány*
IRELAND	Public Analyst Laboratory - Sir Patrick Dun's, Lower Grand Canal Street, Dublin 2, Ireland	*Mr. John Keegan*
ITALY	Istituto Superiore di Sanità, Laboratorio Esposizione e rischio da materiali, c/o Dipartimento ambiente e connessa prevenzione primaria, Viale Regina Elena, 299, 00161 Roma, Italy	*Mrs. Maria Rosaria Milana*
LATVIA	Institute of Food Safety, Animal Health and Environment "BIOR", Lejupes Street 3, Riga, LV-1076, Latvia	*Mr. Guntis Cepurnieks*
LITHUANIA	National Public Health Surveillance Laboratory, Laboratory of Chemistry, Zolyno 36, 10210 Vilnius, Lithuania	*Mr. Gintautas Svilpa*
LUXEMBOURG	Laboratoire National de Santé, Division du Controle des Denrées Alimentaires, 1A, rue Auguste Lumière, 1950 Luxembourg	*Mrs. Carole Dauberschmidt, M Claude Schummer*
MALTA	Delegation to NRL-UK	
NORWAY	Delegation to NRL-DK	
POLAND	Laboratory of Department of Food Safety, National Institute of Public Health, ul. Chocimska 24, 00 791 Warsaw, Poland	*Mr. Jacek Postupolski*
PORTUGAL	ESB (Portuguese Catholic University - Biotechnology College – Packaging Department), Rua Dr. Antonio Bernardino de Almeida, 4200-072 PORTO, Portugal	*Mrs. Maria de Fatima Poças, M Céu Selbourne*
ROMANIA	National Reference Laboratory for Food Contact Materials - National Institute of Public Health - Dr. Leonte street, no 1-3, Bucharest, Romania	*Mrs. Oana Copoiu*
SLOVENIA	National Institute of Public Health of Republic of Slovenia , Dept of Sanitary Chemistry, Grablovičeva 44, 1000 Ljubljana, Slovenia	*Mrs Andreja Zoric*
SLOVAK REPUBLIC	National Reference Centre and Laboratory for material and articles intended to come into contact with food, Regional Public Health Authority In Poprad (RUVZ), Zdravotnícka 3, 058 97 Poprad, Slovak Republic	*Mr. Rastislav Rosipal, Mrs. Mil Syčova', Mrs. Jana Cimerman*
SPAIN	Spanish Agency for Consumer Affairs, Food Safety and Nutrition (AECOSAN), Carretera a Pozuelo- km 5.1, 28220 Majadahonda-(Madrid), Spain	*Mrs. Juana Bustos*
SWEDEN	National Food Administration, Chemistry Division, P.O. Box 622, 75126 Uppsala, Sweden	*Mrs. Susanne Ekroth*
SWITZERLAND	Official Food Control Authority of the Canton of Zurich, Fehrenstrasse 15, P.O.Box 1471, 8032 Zürich, Switzerland	*Mr. Gregor McCombie*
THE NETHERLANDS	Food and Consumer Product Safety Authority (VWA), Ministry of Economic Affairs, Agriculture and Innovation, Paterswoldseweg 1, 9726 BA Groningen, The Netherlands	*Mrs. Dita Kalsbeek*
UNITED KINGDOM	The Food and Environment Research Agency, Sand Hutton, York YO41 1LZ, United Kingdom	*Mrs. Emma Bradley*

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